

CLAIMS:

1. A device for operating a high-pressure discharge lamp, comprising:
a switched-mode power supply circuit for supplying power to the high-pressure discharge lamp from a supply voltage, the power supply circuit comprising at least one power switching element;
5 control means for controlling the at least one power switching element in its switched-on and switched-off states for controlling the power or current supplied to the high-pressure discharge lamp;
wherein the control means are adapted to control the power consumed by the lamp during its steady phase or the current consumed by the lamp during its run-up phase by controlling the
10 on-time (T_{on}) of the switched-on state of the at least one power switching element.
2. A device according to claim 1, wherein the value of the on-time (T_{on}) of the at least one power switching element is a preset value, the preset value depending on the specifications of the type of discharge lamp used.
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3. A device according to claim 1 or 2, wherein the on-time (T_{on}) of the at least one power switching element for a specific discharge lamp type is substantially constant.
4. A device according to any one of the preceding claims, comprising:
20 - input current determining means for determining the input current of the power supply, the input current determining means providing a signal representative of the determined input current;
- a feedback means through which said signal is fed back to the control means, wherein the control means are adapted to control the on-time (T_{on}) of the at least one
25 switching element as a function of said feedback signal.
5. A device according to any one of the preceding claims, comprising
- voltage determining means for determining the lamp voltage, the voltage determining means providing a signal representative of the determined lamp voltage,

- a feedback means through which said signal is fed back to the control means; wherein the control means are adapted to control the on-time (T_{on}) of the at least one power switching element as a function of said feedback signal.

5 6. A device according to any one of the preceding claims, comprising a dim level means for setting a reduced lamp power level, the dim level means providing a signal representative of the dim level of the lamp, wherein the control means are adapted to control the on-time (T_{on}) of the at least one power switching element as a function of said signal.

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7. A device according to claim 5 or 6, wherein the control means comprise a feedback controller for controlling the control means.

8. A device according to claim 7, wherein the control means are adapted to provide fast lamp power adjustments and the feedback controller is adapted to provide relatively slow lamp power adjustments.

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9. A device according to any one of claims 4-8, wherein the on-time (T_{on}) is iteratively adapted with a iteration frequency lower than the switching frequency of the switched-mode power supply.

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10. A device according to any one of the preceding claims, wherein the switching frequency of the switched-mode power supply is at least 100 kHz.

25 11. A device according to claim 9, wherein the iteration frequency is 100 Hz or less, preferably about 10 Hz or less.

12. A device according to any one of the preceding claims, wherein use is made of a half or full-bridge power supply and a filter circuit comprising a series inductor (L) and at least one filter capacitor (C) parallel to the lamp.

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13. A device according to any of the preceding claims, wherein the switched-mode power supply comprises a half-bridge or full-bridge commutating forward topology.

14. A device according to any one of the claims 1-13, wherein the switched-mode power supply comprises a down-converter

15. A method of operating a high-pressure discharge lamp, comprising:
5 supplying power to the high-pressure discharge lamp from a supply voltage, using at least one power switching element;
controlling the power consumed by the lamp during its steady phase using control means;

wherein said control means control the lamp power during the steady state of the lamp by
10 fixing the on-time (T_{on}) of the at least one power switching element.

16. A method according to claim 15, comprising presetting the value of the on-time (T_{on}) of the at least one power switching element depending on the specifications of the type of discharge lamp used.

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17. A method according to any one of the claims 15-16, wherein the on-time (T_{on}) of the at least one power switching element is kept substantially constant.

18. A method according to any one of the claims 15-17, comprising determining
20 the lamp voltage, providing a signal representative of the determined lamp voltage, feeding said signal back to the control means and adapting the on-time (T_{on}) of the at least one power switching element as a function of the determined lamp voltage.